

## **GreenSchool Challenge Overall Report Summary: Bozeman High School**

At Bozeman High School we were able to get people thinking about how the quality and efficiency of lighting affected their everyday lives. We found that fluorescents use more energy than LEDs and

also found from research and from our own survey that some people suffer from photophobia as well as general distraction from fluorescents. We analyzed the cost benefits of switching from fluorescents to LEDs.

Next we used thermal imaging to discover a huge construction flaw where heat was being lost from the building and were able to see the results of how a better insulated wall saved money for the school and resources for the district.

We were also able to help set up an energy audit and will be able to see first-hand the places where energy can be lost without people even realizing.

We discovered a Universal Systems Benefit fund supported through NorthWestern Energy for use in sustainable energy projects and we explored the practicality of a micro-hydro turbine, but determined there was not enough water volume in the creek that flows through the school property.

Harnessing solar energy is another option for utilizing USB funding so, in consultation with Richard Parker, the Physical Engineer in the Bozeman Public School System, we decided to look into installing solar panels on the top of the high school.

We are in the process

of filling out the applications to fund the solar project and have received assistance from Conor Darby of Solstice Energy systems. As we imagined, Conor's interest in our Challenge was sparked. NorthWestern Energy sent us a packet with questions to answer. While working our way through the application we learned more about our intended project and gained inspiration to further our investment in the project. We considered organizing solar panels in a semi circle following the existing shape of the canopy at the main entrance to the school, facing towards the south. When we consulted with Conor we determined that the semicircular array was not ideal, and that the roof of the mechanical room was the best location and was sturdy enough to support the panels.

Calculating costs and contacting people, we also found that Bozeman Schools Foundation is a possible donor for some money towards the solar panels.

Our real green school project is only just beginning. Because we investigated so many ideas, we learned a lot and had fun. We still have many things to follow up on, which will likely lead to other ideas, but we definitely think it is worth it!